

Page 13, the entire paragraph beginning at line 20 to page 14, line 10, substitute the following paragraph:

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Figs. 14 and 15 are schematic diagrams of an ion beam gun 300, a target 302 of some metal and a substrate 304 to illustrate how a substrate/target angle or sputtering angle may comprise rotating one or both of the target 302 and the substrate 304 about one or both of  $x$  and  $y$  axes within nominal surface planes 306 and 308 respectively by various angles  $\alpha$  and  $\beta$  in order to achieve a non-parallel relationship between the target and the substrate for the purpose of achieving oblique ion beam sputtering of the metal onto the substrate 304 with a reduced density. Either angle  $\alpha$  or  $\beta$  or a combination of the angles results in oblique ion beam sputtering (non-normal flux flow) from the center of the target to the center of the substrate. Either the target 302 or the substrate 304 may be maintained stationary while the other is rotated by angles  $\alpha$  and/or  $\beta$  to achieve a non-parallel relationship therebetween as shown in Figs. 14 and 15. As an example, Fig. 14 shows the substrate 304 rotated by an angle  $\alpha$  about the  $x$  axis and Figs. 15A and 15B show the substrate rotated by an angle  $\alpha$  about the  $x$  axis and by an angle  $\beta$  about the  $y$  axis. Accordingly, the substrate/target angle or sputtering angle comprises angles  $\alpha$  and  $\beta$  wherein the planes formed by these angles are orthogonal with respect to one another. As shown in Figs. 15A and 15B and as described in examples hereinabove  $\alpha$  may be  $40^\circ$  and  $\beta$  may be in a range of  $10^\circ$ - $30^\circ$ . Alternatively, or in addition, the substrate/target angle or sputtering angle may comprise rotating the target 302 about one or both of the  $x$  and  $y$  axes on its nominal surface plane 306. Figs. 14, 15A and 15B show rows and columns of magnetic heads 310 being formed on the substrate 304 with the novel free layer structures of the present invention. Various layers for the read head are shown in Fig. 11 and various layers for the write head are shown in Figs. 6-10.